

# **Exhibit 19**

**In the Matter of**

**U.S. Commodity Futures Trading Commission**

**vs.**

**William Byrnes, Christopher Curtin,**

**The New York Mercantile Exchange, Inc., and Ron Eibschutz**

**REBUTTAL TO THE REPORTS OF**

**Russell Battaglia, Jeffrey Harris, and Robert Silvay**

**HENDRIK BESSEMBINDER**

## **I. OVERVIEW**

1. I was asked by the Division of Enforcement of the U.S. Commodity Futures Trading Commission ("CFTC") to respond to the reports filed in this matter by Russell Battaglia, Jeffrey Harris, and Robert Silvay.<sup>1</sup> I will respond in turn to Mr. Battaglia, then to Professor Harris, and finally to Mr. Silvay. However, before doing so I will discuss how economic theory is useful in assessing whether there is a substantial likelihood that the information disclosed by Mr. Byrnes and Mr. Curtin to Mr. Eibschutz would, if known to an economically rational trader, be considered important in making investment or trading decisions.

2. Financial economists have developed a rich set of models describing rational trading behavior in situations where some investors ("informed traders") have access to non-public information while other investors ("uninformed traders") have access only to public information such as past prices and volumes. This class of economic models is sometimes referred to as "informed trader" models.

3. In a classic example, Professors Grossman and Stiglitz construct a model where the future return on a risky asset depends both on information (a "signal") received by some, but not all, traders and also on a random outcome unknowable to any trader.<sup>2</sup> A key implication of their seminal model is that the informed trader's demand for the asset (and by implication her trading and investment decisions) depends on the signal received, even though the informed trader cannot be sure that her signal will ultimately turn out to be correct. That is, a positive signal increases the informed trader's demand for the risky asset even though she is aware that

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<sup>1</sup> In addition to the materials listed in my affirmative report and the academic publications cited in the footnotes of this report, I reviewed transcripts of Mr. Eibschutz's testimony on July 14, 2011 and November 19, 2015.

<sup>2</sup> Grossman, S., and J. Stiglitz, 1980, "On the Impossibility of Informationally Efficient Markets", American Economic Review, Vol. 70, p. 393 – 408. This model has been very influential, as demonstrated by more than 6,600 citations on the Google Scholar website.

the random outcome might ultimately outweigh the positive signal and the asset value could decline, or vice versa. As might be expected, the effect of the signal on the informed trader's demand depends in part on the importance of the signal relative to the random factors also affecting asset returns; if the signal is relatively stronger the effect on demand is larger, while if the signal is weaker the effect on demand is smaller.

4. In the Grossman and Stiglitz model the receipt of the private information signal always causes the informed trader to submit new buy or sell orders for the risky asset. This reflects that their model does not include any costs of completing trades. In models that incorporate trading costs (e.g., bid-ask spreads) the informed trader makes a transaction in response to an information signal only if the value of the information exceeds the trading cost.<sup>3</sup> However, even in those situations where a trader determines that the costs of trading are high enough that she will not trade in response to the signal, the information is important in that it is considered by the informed trader in deciding whether to trade.

5. For this matter, the key implication of informed trader models is that certainty or complete knowledge is not necessary for information to be important. Traders who receive private information consider it, and will make new trades in response to it if the signal is informative enough to overcome transaction costs, even if outcomes are uncertain.

6. While the informed trader models as presented in the academic journals are somewhat complex, their implications coincide with simple intuition. The receipt of private information does not need to guarantee "sure thing" outcomes to be important. Information that improves even slightly a trader's odds of profiting from a given trade can be important, particularly for a trader who transacts frequently. Stated alternatively, information that allows a

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<sup>3</sup> See, for example, Glosten, L., and P. Milgrom, 1985, "Bid, Ask, and Transaction Prices in a Specialist Market with Heterogeneously Informed Traders", *Journal of Financial Economics*, Vol. 14, p. 71-100.

rational trader to form a more educated view about future price movements is important in guiding trading decisions.

7. Informed trader models are generally quite flexible in terms of the nature of the information signal received by informed traders. In general, any information relevant to forecasting future prices can comprise an information signal. As such, the information can be with regard to fundamentals (e.g., forecast earnings in the stock market), supply and demand conditions (e.g., weather forecasts for agricultural or energy commodities), upcoming orders and trades, or any information relevant for forecasting any of these categories. For example, information that a trader who is widely regarded as skilled recently purchased a given asset could be sufficient to infer that the trader knows something positive about fundamentals, and could itself comprise a positive signal. Similarly, information sufficient to support a prediction that a given trader intends to buy or sell may be sufficient to forecast price changes, because the financial economics literature has documented extensively that trades affect prices.

## **II. REBUTTAL OF MR. BATTAGLIA'S REPORT**

8. Mr. Battaglia asserts (page 4 of his report, BYRNES 000053) that the information disclosed in this matter “is not material, as it ... would not have been sufficient to discern a party’s overall net trading positions, strategies, or present or future orders.” I concur that the information disclosed in this matter would not have been sufficient to allow a trader to discern overall trading positions, strategies, or future orders with certainty or with complete knowledge. However, as noted in Section I above, certainty is not required for information to be important. Mr. Battaglia provides no data or argument to refute the simple reasoning that the information revealed would have allowed traders, in particular those knowledgeable about the relevant markets, to form educated views regarding positions, strategies, and present or future orders.

While the knowledge of a few trades does not allow direct or certain observation of net positions, the trades are relevant to forming educated views relating to positions, since each trade increases or decreases the trader's position. As described in Section I, these educated views need not be certain and need to comprise only one factor relevant to future price changes in order for there to be a substantial likelihood that they would affect trading decisions.

9. Mr. Battaglia notes on page 7 of his report (BYRNES 000056) that NYMEX makes available to the public daily reports that include "details of previously executed trades." I understand that the NYMEX disseminates data on *aggregate* trading volume and open interest by contract on the CME website, and disseminates certain price data to subscribers. Notably, however, the NYMEX does not disseminate to the public at large or to subscribers information on the identities of the buyers or sellers or brokerage firms involved in specific trades.

10. Mr. Battaglia also notes on page 7 of his report that "traders may choose to share the information" about completed trades with brokers. I concur that traders have the right to share such information about their own trades. He also asserts on page 7 that information flows in voice brokered markets "often contain the identities of the brokers and/or traders who have consummated specific deals in the past." Such information flows would not be improper if the traders indeed consented to the sharing of such information. However, to my knowledge neither the traders nor the brokers involved consented to the sharing of information by Mr. Byrnes and Mr. Curtin with Mr. Eibschutz concerning their completed trades.

11. On page 8 of his report (BYRNES 000057) Mr. Battaglia quotes from certain trader depositions to assert that information regarding completed trades is sometimes shared in the brokered markets. However, Mr. Battaglia verifies that the identities of traders involved in

specific transactions was not broadly known when he writes that “Eibschutz testified that his intentions were to obtain the identities of parties who executed trades....”

12. Mr. Battaglia observes on page 9 (BYRNES 000058) of his report that “The orders that a market participant plans to submit or that have already been submitted to the marketplace for execution are the means to implement his or her overall trading strategy.” I concur that order submissions are a crucial manifestation of trading strategy. It is for this reason that information about the trades that result from order submissions is potentially useful in forming views regarding trading strategies.

13. Mr. Battaglia also asserts on page 9 that “[i]t would be extremely difficult, if not impossible, to gain inside knowledge of a trader’s overall trading strategy” from the information disclosures in this case. Mr. Battaglia does not provide any basis for his assertion that the disclosures in this case could not have been used by traders knowledgeable regarding the markets involved to form educated views regarding individual traders’ strategies. As noted in my own affirmative report, the disclosures repeatedly involved the same firm on multiple dates, and often specifically identified multiple related option trades engaged in by the firms. Information regarding multiple trades can only reduce the degree of difficulty in forming educated views.

14. Also on page 9, Mr. Battaglia concedes that traders may be concerned about the practice of front running, but he asserts that “Byrnes did not have access to any market participants’ pending or future order information.” A lack of certain knowledge regarding future orders does not preclude that knowledgeable observers could form educated views about future orders on the basis of past trades, particularly if the trades are large. As a case in point, some market participants have lobbied in recent months for delays in the public reporting of large trades in corporate bond markets, expressing the concern that knowledge regarding a single

large trade may allow market participants to form educated views regarding future orders.<sup>4</sup> In this vein, two academic researchers recently wrote “Reporting of large size transactions also creates opportunities for predatory positioning or front running by other market participants, thus reducing the incentive for a participant to provide liquidity for large size trades. This is especially the case where the trade is generated by a market participant considered as informed.”<sup>5</sup>

15. On page 10 of his report (BYRNES 000059), Mr. Battaglia notes that information regarding a trader’s net open position “is so important that even traders at the same firm will make efforts to keep their fellow traders from knowing their exact positions. This secrecy is vital to prevent other traders from knowing your anticipation of future price movements, and your expected future trade directions.” Mr. Battaglia goes on to note that Mr. Byrnes did not divulge any trader’s net position.

16. I concur that traders are typically concerned that others not know their net positions, because such knowledge might allow for others to form educated views about the traders’ forecasts of future price movements or her planned future trades. While the knowledge of a few trades does not allow direct or certain observation of net positions, the trades are relevant to forming educated views relating to positions, since each trade increases or decreases the trader’s position. In fact, Mr. Battaglia refers to a broker deposition where the broker indicates that it might indeed be possible to form educated views about positions based on information regarding a few thousand “lots” (contracts) traded. This is relevant because, as I

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<sup>4</sup> See, for example, the Financial Times article “US banks push for delay in reporting corporate bond trades”, available at <http://www.ft.com/intl/cms/s/0/c4176a68-ea8f-11e4-a701-00144feab7de.html#axzz41VALm4er>.

<sup>5</sup> Allevenda M., and R. Cont, 2010, “Transparency in Credit Default Swap Markets”, available at <http://www2.isda.org/search?headerSearch=1&keyword=Transparency+in+Credit+Default+Swap+Markets>.



document in my report, many of the disclosures in this case did involve trades of thousands, and in some cases tens of thousands, of contracts.

17. Mr. Battaglia asserts on page 11 of his report (BYRNES 000060) that Mr. Eibschutz sought information on trader identities “for the sole purpose of potentially building his brokerage business.” However, Mr. Eibschutz’s own professed motive in obtaining the improper information from Mr. Byrnes and Mr. Curtin is quite distinct from the question of whether there is a substantial likelihood that traders would have considered the information important in formulating their trading decisions, had they been aware of it. In any case, the information provided Mr. Eibschutz with an unfair competitive advantage relative to other brokers.

18. Mr. Battaglia concludes on page 13 of his report (BYRNES 000062) that Mr. Byrnes could not have known on the basis of ClearPort information what “market participants would trade in the future... how much volume he or she would be buying or selling, what price thresholds he or she may be sensitive to, ... or other elements that make up a trader’s overall trading strategy.” While it may be true that *Mr. Byrnes* could not determine these facts with certainty, this statement is irrelevant to the question of whether the information divulged would be considered important to other market participants had it been known by them. In my opinion the information was important because there was a substantial likelihood that it would have allowed others to form educated views regarding future orders, positions, or trading strategies, had they known it.

### **III. REBUTTAL OF PROFESSOR HARRIS’ REPORT**

19. Professor Harris asserts that knowledge of the identities of traders who have completed transactions is not important to others in developing trading strategies. Findings in

the academic literature are at odds with this assertion. A striking example to the contrary is provided by the studies that focus on equity trading by corporate insiders. These studies show that trader identity can indeed be important in determining profitable trading strategies, because they document that corporate insiders earn abnormal profits on their trades.<sup>6</sup> While there is some debate over whether outsiders can also earn abnormal profits from a strategy of mimicking insiders after information on their trades is made public, it is clear that it would be possible to earn abnormal profits if one was able to learn the identity and direction of insider trades after the trades occurred, and before the information was made public.

20. Of course, this matter does not involve share trading or corporate insiders. However, the findings from the insider trading studies show that it is wrong to assert, as Professor Harris does, that trader identities necessarily comprise a “negligible component” of the information relevant to traders. Instead, the findings from the insider trading studies show vividly that trader identities can contain important and useful information.

21. It is substantially likely that at least some rational traders active in energy markets who are involved in physical as well as futures markets possess information about market fundamentals not known to other traders. If so, it would be informative and relevant to know the trades they made. It is possible that some traders are particularly skilled at assessing the implications of publicly available information for future price movements. In this case too it could be important and relevant to know the trades completed by these individuals. In addition, knowledge that a given trader has recently completed large trades/and or trades in an illiquid market can be important, because this information may be sufficient to develop profitable front running strategies.

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<sup>6</sup> See, for example, N. Seyhun, 1986, “Insiders’ Profits, Costs of Trading, and Market Efficiency”, *Journal of Financial Economics*, Vol. 16, p 189-212.

22. Professor Harris notes that most of the disclosures in this matter involved trades in options on futures. In paragraphs 33 and 34 he identifies the parameters that are used when implementing typical option valuation models, noting that trader identity is not one of the parameters. From this he concludes that trader identities are not relevant in determining current *prices*. However, this conclusion is irrelevant for the question of whether trader identities are important to traders in deciding what *trades* to make. A current buy trade will turn out to be profitable if the *future* sales price is higher than the current buy price, and vice versa. Trader identities therefore can be important to trading decisions if they allow a trader to make even imperfect forecasts regarding future price changes, as for example, knowledge that a trade is completed by a corporate insider does. Similarly, trader identities can be important to trading decisions if they allow for a trader to form educated views regarding future orders submitted by others, because those orders themselves can be expected to alter future prices.

23. Professor Harris asserts in paragraph 37 that “The identity of traders in cleared trades has not been shown to be useful for implementing profitable trading strategies.” Similarly, in paragraph 43 he asserts that “no empirical studies have demonstrated that the identity of a trader is profitably linked to these future market conditions.” These statements are incorrect if interpreted to apply to the financial markets as a whole, as they are at odds with the findings presented in studies of equity trading by corporate insiders. Even if interpreted to apply more narrowly to commodities markets the statements are misleading, and comprise classic examples of the caveat that “the absence of evidence is not evidence of absence.”

24. The statements by Professor Harris are misleading because the disclosures at issue in this case involve specific names of traders at specific firms who completed specific trades, while the studies that Professor Harris refers to in attempting to support his assertions do not

examine disclosures of such specific information. I am not aware of any published research study that has assessed in a large sample whether knowledge of the identity of individual traders and firms involved in specific trades, in combination with information about instruments traded, trade size, and direction of trade, can be used to form profitable trading strategies in the commodity markets.

25. To support his assertion that the identity of traders is not useful for implementing trading strategies, Professor Harris refers to studies showing that *other* types of information are not useful. For example, in paragraph 39 he cites a study where knowledge of market maker identities is not found to be useful. In paragraphs 41 and 45 he cites studies where knowledge of trades taken by broad groups of traders is not found to be useful. In paragraph 44 he cites a study where knowledge that aggregate trading interest is clustered on one side of the market is not shown to be useful.<sup>7</sup> None of the conclusions Professor Harris draws from these studies is relevant to assessing the importance of the information disclosures in this case, since the disclosures in this matter involve much richer information, including the identities of parties to specific trades, as compared to the studies he cites.

26. In paragraph 42 Professor Harris asserts that the information revealed in this matter was “stale and untimely.” In paragraphs 46, 47, 48 and 52 he repeats his assertion that the information was stale. This assertion is unfounded. While it is true that the disclosures were with regard to trades that occurred earlier the same day or on prior trading days, the market as a whole did not know all of the disclosed information. Most notably, the market did not know the identity of the parties to the trades involved, so the revelation of identities did not comprise stale information.

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<sup>7</sup> Ironically, in paragraph 40 he cites a study where certain information regarding completed trades *is* shown to be useful in explaining price changes.

27. Professor Harris asserts in paragraph 48 that the disclosures in this matter “did not reveal information about a trader’s future intentions, future price changes, or other information that a trader would use in deciding whether to trade.” Similarly, in paragraph 50 he states that a trader could not “accurately discern the current position, interest or strategy” (of another trader), and in paragraph 53 he claims that “To be able to discern knowledge about overall positions, interests, or strategies, the information provided must be much more comprehensive than the information revealed in this case.” He reiterates the reasoning in paragraph 57, claiming that information about trades in one-month calendar spread options “does not provide the type of information necessary to determine, or even approximate, that trader’s overall position or strategy.”

28. I concur that the information revelations in this matter would not allow a trader to learn about other traders’ overall intentions or strategies or to discern future price changes with certainty or completeness. However, certainty or completeness are not required in order for information to be important to trading decisions. As discussed in Section I of this report, there is a substantial likelihood that information will affect trading decisions even in the absence of certainty or completeness. Trading in the “correct” direction slightly more than fifty percent of the time can be sufficient to render a trading strategy worthwhile. For this reason information that changes the likelihood that a given trade will be profitable can be viewed as significantly altering the total information available to the trader.

29. Nowhere in his report does Professor Harris demonstrate that traders active in the relevant markets could not use the information revealed to Eibschutz in the phone calls to form educated views that would support changes in trading strategy. As I observe in my own report, information regarding completed trades can be important because it allows others to form

educated views regarding the strategies used by the traders involved and/or because it can be used to forecast future trades.

30. In paragraphs 60 to 73 of his report Professor Harris offers his observations regarding Mr. Eibschutz's apparent motivations in soliciting information about completed trades from Mr. Byrnes and Mr. Curtin. However, Mr. Eibschutz's own professed motive in obtaining the improper information from Mr. Byrnes and Mr. Curtin is quite distinct from the question of whether there is a substantial likelihood that other traders would have considered the information important in formulating their trading decisions, had they been aware of it. In any case, the information provided Mr. Eibschutz with an unfair competitive advantage relative to other brokers.

#### **IV. REBUTTAL OF MR. SILVAY'S REPORT**

31. Mr. Silvay asserts in paragraph 39 of his report that brokers will sometimes answer questions regarding the identity of a party to a potential trade. I concur that traders can have a legitimate interest in the identity of the counterparty to a potential trade, e.g., so that credit standing can be evaluated. I also concur that it is not improper to reveal information about the identity of a potential trader, if the trader has consented to such revelation. However, these considerations do not imply that it is proper to reveal the identities of traders in a completed transaction to parties not involved in the transaction, without the consent of the traders whose identity is revealed.

32. Mr. Silvay asserts in paragraph 44 of his report that "once the market has processed trade information – which happens almost instantaneously – the details of that trade no longer matter to market participants." I would concur with this statement if it were restricted to small trades and to information revealed to the public, such as aggregate trading volume. This

statement is not true in general for large trades, and it is not necessarily true when the information disclosed includes trader identity. I describe in my own report in this matter a number of reasons that the revelation of trader identity can indeed be important to market participants.

33. As noted above in Section II, an illustration of how trade information can be relevant even after the trade is reported is provided by the current controversy over the timing of the reporting of corporate bond trades. Some market participants have lobbied for delays in the public reporting of these trades, expressing the concern that knowledge regarding a single large trade may allow market participants to form educated views regarding future orders.<sup>8</sup> In this vein, two academic researchers recently wrote “Reporting of large size transactions also creates opportunities for predatory positioning or front running by other market participants, thus reducing the incentive for a participant to provide liquidity for large size trades. This is especially the case where the trade is generated by a market participant considered as informed.”<sup>9</sup>

34. In paragraph 45 of his report Mr. Silvay reports on a series of IM messages, and he references an Appendix to his report that contains other “examples of such information sharing.” However, to my reading these messages do not appear to reveal the identity of buyers and sellers in individual completed trades to parties not involved in the trades. For example, Mr. Silvay reports that a trader named Brad Hrycenko conveys to Mr. Eibschutz by text message “LOL, I wish I could help ya man, give Andy a shout” and “Call Don Wray at Barclay’s, he’s

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<sup>8</sup> See, for example, the Financial Times article “US banks push for delay in reporting corporate bond trades”, available at <http://www.ft.com/intl/cms/s/0/c4176a68-ea8f-11e4-a701-00144feab7de.html#axzz41VALm4er>.

<sup>9</sup> Allevenda M., and R. Cont, 2010, “Transparency in Credit Default Swap Markets”, available at <http://www2.isda.org/search?headerSearch=1&keyword=Transparency+in+Credit+Default+Swap+Markets>.

always the seller.” Based on these two messages, Mr. Silvay asserts that the trader has given Mr. Eibschutz “the names and trading patterns of other traders.”

35. In my view the information revealed in the IM messages quoted by Mr. Silvay fails to provide any support for his assertion in paragraph 46 of his report that “the calls contain exactly the sort of information routinely shared by market participants.” The calls at issue in this matter routinely divulged the identities of the parties involved in completed trades, while to my reading the IM messages compiled by Mr. Silvay did not. In particular, in the example quoted in paragraph 45 of Mr. Silvay’s report, while Mr. Hrycenko mentions market participants, there appears to be no revelation of the parties involved in any specific trade.

36. In the Section of his report that is titled “Importance to a Reasonable Trader of the Information on the Calls” Mr. Silvay makes a number of assertions, including that the information in the phone calls was “too stale, too fragmented and incomplete, and related to trades with too small a volume” to be significant and that there was “never an opportunity for front running.” Remarkably, Mr. Silvay makes these assertions even though he provides no analysis of the sizes of the trades for which information was divulged in the relevant phone calls. As noted in my own report, these revelations sometimes involved thousands or even tens of thousands of contracts. Nor does he explain how he can rule out that observers could form educated views regarding trading strategies or trading intentions on the basis of information that included trader identities.

37. Mr. Silvay asserts in paragraph 55 that “The Calls did not reveal either trader’s overall position size in the specific instrument, either trader’s present or future cash position, either trader’s strategy within or across instruments, or either trading entity’s financial condition.” He continues this reasoning in paragraph 56, stating that without additional



information “the trader would not be able to determine what either of the trading entities would do next.” I concur that the information revealed in the telephone calls at issue would not be sufficient to allow other traders to infer these issues with certainty. However, each trade involves increases or decreases in traders’ positions, and information regarding numerous trades can be used to form educated views regarding positions. More broadly, Mr. Silvay’s observations do nothing to rule out the likelihood that a trader knowledgeable about these markets could form educated views regarding all of these issues on the basis of the information revealed.

38. Mr. Silvay acknowledges in paragraph 56 of his report that no trader earns profits on every trade. I concur. In fact, trading in the “correct” direction slightly more than fifty percent of the time can be sufficient to render a trading strategy worthwhile. For this reason information that only slightly alters the likelihood that a given trade will be profitable can be viewed as significantly altering the total information available to a trader.

## **V. CONCLUSIONS**

39. The reports filed in this matter by Russell Battaglia, Jeffrey Harris, and Robert Silvay contain some common themes. First, they each assert, in essence, that the information revealed to Mr. Eibschutz by Mr. Byrnes and Mr. Curtin would not allow anyone to assess with certainty the overall positions or trading intentions of those whose information was disclosed, or to forecast future price changes with certainty. I concur. However, these observations do not imply that the information revealed was unimportant. Nowhere do Mr. Battaglia, Professor Harris, or Mr. Silvay present any reasoning or analysis to rule out that traders familiar with the relevant markets could use the information revealed to form educated views regarding each of

these issues. The economic theory of informed trading shows that information need not guarantee a “sure thing” to alter demand and trading.

40. Second, Mr. Battaglia, Professor Harris, and Mr. Silvay all assert that the information revealed to Mr. Eibschutz by Mr. Byrnes and Mr. Curtin was “stale” since it pertained to trades that occurred prior to the phone calls. This assertion is not correct, in particular with regard to the revelation of the identity of the parties to specific trades. This information was not known to the public, and was therefore not stale when it was revealed.

41. Professor Harris cites numerous studies where certain types of information are not shown to be useful in forecasting price changes. These studies are not informative as to whether the information revealed in this matter would be important to other traders had they known it, because none of the studies he cites considered the identity of the parties to individual trades.

42. Mr. Battaglia and Mr. Silvay each assert it is not unusual for information to be exchanged between parties in brokered OTC markets. However, they do not establish that it is either common or appropriate for participants in these markets to reveal the identity of the parties to completed trades to those not involved in those trades and without the consent of the traders involved. By contrast, the telephone calls in this matter routinely revealed such information.

43. On balance, the arguments and analysis provided by Mr. Battaglia, Professor Harris, and Mr. Silvay do nothing to refute the reasoning that (i) traders familiar with the relevant markets could have used the information revealed by Byrnes and Curtin to form educated views regarding the positions, strategies, and future order submissions of those whose information was revealed, and (ii) the information was important in that there was a substantial likelihood that rational traders would use the informed views derived from the information to affect their decisions to buy, sell, or hold commodity contracts.

A handwritten signature in blue ink, appearing to read "Hendrik Bessembinder", written over a horizontal line.

Hendrik Bessembinder

3/17/16

Date